

IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) GENE EXPRESSION CASSETTE; A gene expression cassette characterized by the fact that comprises comprising one or more genes encoding enzymeone or more enzymes selected from the group that contains: myo-inositol 1 phosphate synthase (EC: 5.5.1.4), myo inositol monophosphatase (EC: 3.1.3.25), myo inositol oxygenase (EC: 1.13.99.1), β-glucuronidase (EC: 3.2.1.31), glucuronokinase (EC: 2.7.1.43), glucuronosyltransferase (EC: 2.4.1.17), glucuronate 1-phosphate uridylyltransferase (EC: 2.7.7.44), phosphoglucomutase (EC: 5.4.2.2), UDP-glucose pyrophosphorylase (EC: 2.7.7.9), UDP-glucose dehydrogenase (EC: 1.1.1.22), UDP-D-glucuronate carboxylase (EC: 4.1.1.35), 1,4-β-D-xylan synthase (EC: 2.4.2.24), and cellulose synthase (EC: 2.4.1.1) which is cloned into a transformation binary vector and introduced into bacterium Agrobacterium tumefaciens, wherein the cassette is for expression in Eucalyptus cells.

2-3. (Canceled).

4. (Currently Amended) CASSETTE; The cassette according to claim 1, characterized by the fact that the said wherein the enzymes enzyme is [[are]] involved in the biosynthesis of hemicelluloses, cellulose and/or uronic acids.

5. (Currently Amended) CASSETTE; The cassette according to claim 4, characterized by the fact that wherein the hemicelluloses are xylans.

6. (Currently Amended) CASSETTE; The cassette according to claim 4, characterized by the fact that an wherein the uronic acid is glucuronic acid.

7. (Currently Amended) USE—OF—ONE—OR—MORE—GENE—EXPRESSION CASSETTES, characterized by the fact that it is for the overexpression or repression of the genes described in claim 1. A method for overexpression or repression of the genes according

to claim 1, comprising the step of introducing one or more gene cassettes into a *Eucalyptus* plant genome.

8. (Currently Amended) METHOD FOR GENETIC TRANSFORMATION IN PLANT

CELLS, characterized by the fact of introducing one or more cassettes, according to one claim 1, into the plant genome A method for genetic transformation in *Eucalyptus* plant cells comprising the step of introducing at least one cassette according to any of claims 1, 4, 5 or 6 into the plant genome via *Agrobacterium tumefaciens*.

9-10. (Canceled).

11. (Currently Amended) METHOD, according to claim 8, characterized by the fact of The method of claim 8, further comprising the step of changing the metabolic pathway for the biosynthesis of hemicelluloses, cellulose and/or uronic acids.

12. (Currently Amended) METHOD, according to claim 8, characterized by the fact that The method of claim 8, wherein the said plant cell is a cell *Eucalyptus* plant cells are from any part of the plant, such as the root, stem, fruit, leaf, seed, or flower.

13. (Currently Amended) METHOD TO OBTAIN GENETICALLY MODIFIED PLANT, characterized by the fact that comprises the following stages A method for obtaining a genetically modified *Eucalyptus* plant comprising the steps of:

a) the genetic transformation of *Eucalyptus* plant cells according to claim 8;

b) regeneration of stage (a) the cells in step a;

[[c]] c) expression of the DNA introduced into the cells of stage step (b) in sufficient amount to substantially change the metabolic pathway for the biosynthesis of hemicelluloses and/or cellulose and/or uronic acids; and

d) obtention of the *Eucalyptus* modified plant.

14. (Currently Amended) METHOD, according to claim 13, characterized by the fact that The method of claim 13, wherein the said-modified *Eucalyptus* plant is a cell, an organ, a tissue, a seed, the entire plant, or its derived plants.

15. (Currently Amended) GENETICALLY MODIFIED PLANT, characterized by the fact of containing A genetically modified *Eucalyptus* plant comprising one or more expression cassettes according to claim 1, 4, 5 or 6.

16. (Currently Amended) GENETICALLY MODIFIED PLANT, characterized by the fact of being originated A genetically modified *Eucalyptus* plant originating from the method according to claim 13.

17-19. (Canceled).

20. (Currently Amended) USE OF THE PLANT, The genetically modified plant according to claim 15, characterized by the fact of being wherein the genetically modified plant is used for obtaining wood and/or cellulose.

21. (Currently Amended) DERIVED PLANTS Derived *Eucalyptus* plants, characterized by the fact of being originated originating from the genetically modified *Eucalyptus* plant[[],] according to claim 15, wherein said derived plant comprises the cassette.

22. (Currently Amended) GENETICALLY MODIFIED SEED, A genetically modified seed characterized by the fact of comprising one or more expression cassettes according to any one of claims 1, 4, 5 or 6.

23. (Currently Amended) A genetically modified seed GENETICALLY MODIFIED SEED, wherein the seed is modified by introducing one or more cassettes according to any one of claims 1, 4, 5 or 6 into the genome, with the one or more expression cassettes comprised according to claim 1.

24. (Currently Amended) GENETICALLY MODIFIED SEED; A genetically modified seed obtained from the method of claim 13, characterized by the fact of presenting wherein the seed presents a change in the biosynthesis of cellulose, hemicelluloses and/or uronic acids.

25. (Currently Amended) USE OF THE GENETICALLY MODIFIED SEED, according to claim 22, characterized by the fact of being used to generate plants The genetically modified seed of claim 22, wherein the genetically modified seed is used to generate genetically modified *Eucalyptus* plants.

26-33. (Canceled).

34. (Currently Amended) METHOD FOR MODULATING THE POLYPEPTIDES LEVEL IN PLANTS A method of modulating polypeptide level in *Eucalyptus* plants, wherein, the said polypeptides being involved in the biosynthesis of hemicelluloses, cellulose and/or uronic acids, characterized by the fact of comprising the following stages the method comprising the steps of:

- a) introduction of introducing one or more gene expression cassettes according to claim 1 into the *Eucalyptus* plant cell according to claim 1;
- b) regeneration of regenerating the *Eucalyptus* plant cell;
- c) induction of inducing the expression of the said polypeptides during a sufficient period to modulate the level of biosynthesis of hemicelluloses, cellulose and/or uronic acids in the said *Eucalyptus* plants.

35. (New) The cassette according to claim 1, wherein the cassette is for expression in *Eucalyptus grandis* cells.

36. (New) A genetically modified seed comprising one or more expression cassettes according to claim 35.

37. (New) A genetically modified seed, wherein the seed is modified by introducing one or more cassettes according to claim 35, into the genome.

38. (New) A method for obtaining a genetically modified *Eucalyptus* plant comprising the steps of:

- a) the genetic transformation of *Eucalyptus* plant cells according to claims any one of claims 11 or 12;
- b) regeneration of the cells in step a;
- c) expression of the DNA introduced into the cells of step (b) in sufficient amount to substantially change the metabolic pathway for the biosynthesis of hemicelluloses and/or cellulose and/or uronic acids; and
- d) obtention of the *Eucalyptus* modified plant.

39. (New) The genetically modified *Eucalyptus* plant according to claim 16, wherein the genetically modified *Eucalyptus* plant is used for obtaining wood and/or cellulose.

40. (New) Derived *Eucalyptus* plants originating from the genetically modified *Eucalyptus* plant according to claim 16, wherein said derived plant comprises the cassette.